

CLAIMS

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What is claimed, is

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1. A process of separation of liquid feeds through a membrane, characterised in that it is a pressure-driven separation process in which disturbance of the pressure-driven separation is decreased or prevented by a separation membrane which comprises an elastomer in which a filler is dispersed in such a way that the filler/matrix interactions limit the swelling of the membrane.

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2. The pressure-driven separation process of claim 1, characterised in that two or more components are separated over a membrane by means of a pressure gradient driven by a pressure generated at the feed site.

3. The pressure-driven separation process of claim 1 or 2, wherein the fillers act as a cross-linker for the elastomers.

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4. The pressure-driven separation process of claim 1 to 3, wherein the fillers are molecular sieves or porous materials with nanometer dimension windows, channels and cavity architectures.

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5. The pressure-driven separation process of claim 1 to 4, wherein the fillers are silica, alumina, titania and carbon molecular sieves.

6. The pressure-driven separation process of the claim 4 to 5, wherein the molecular sieves or porous materials have pores with a median diameter in the range 0.3–10 nm.

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7. The pressure-driven separation process of any of the claims 1 to 6, wherein said elastomeric membrane contains a filler that results in a swelling reduction of the elastomeric membrane of at least 3 %.

8. The membrane separation process of claim 7, wherein said swelling reduction results in an increase of the rejection of the elastomeric membrane for solutes of at least 3 %.

9. The membrane separation of claim 4, wherein said filler is a zeolite.

10. The membrane separation of claim 9, wherein said zeolite has a ZSM-5 structure.
11. The membrane separation of claim 9, wherein said zeolite has a USY structure.
12. The membrane separation of any of the claim 1 to 11, wherein said elastomer is
5 a polysiloxane.
13. The membrane separation of claim 12, wherein said polysiloxane is a polydimethylsiloxane.
14. The membrane separation of any of the claim 1 to 13, wherein said elastomer is
10 EPDM.